

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inter Patent Application of )

Peter MALM et al. )

Application No.: 10/622,742 )

Filed: July 21, 2003 )

For: FAST ITERATION TERMINATION OF )  
TURBO DECODING )

Group Art Unit: 2183

Examiner: Unassigned

Confirmation No.: 9979

**FIRST INFORMATION DISCLOSURE STATEMENT  
TRANSMITTAL LETTER**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Enclosed is an Information Disclosure Statement and accompanying form PTO-1449 for the above-identified patent application.

- ☒ No additional fee for submission of an IDS is required.
- ☐ The fee of \$180.00 (1806) as set forth in 37 C.F.R. § 1.17(p) is also enclosed.
- ☐ A statement under 37 C.F.R. § 1.97(e) is also enclosed.
- ☐ A statement under 37 C.F.R. § 1.97(e), and the fee of \$180.00 (1806) as set forth in 37 C.F.R. § 1.17(p) are also enclosed.
- ☐ Charge \$\_\_\_\_\_ to Deposit Account No. 02-4800 for the fee due.
- ☐ A check in the amount of \$\_\_\_\_\_ is enclosed for the fee due.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: November 26, 2003

By: Kenneth B. Leffler  
Kenneth B. Leffler  
Registration No. 36,075

P.O. Box 1404  
Alexandria, Virginia 22313-1404  
(703) 836-6620

In ~~the~~ Patent Application of

Peter MALM et al.

Application No.: 10/622,742

**Filed: July 21, 2003**

For: FAST ITERATION TERMINATION OF  
TURBO DECODING

Group Art Unit: 2183

**Examiner:** Unassigned

Confirmation No.: 9979

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. § 1.56, Applicants hereby submit the following information in conformance with 37 C.F.R. §§ 1.97 and 1.98.

Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed.

U.S. Patent No. 5,761,248, issued to Hagenauer et al., June 2, 1998.

U.S. Patent No. 6,360,345, issued to Kim et al., March 19, 2002.

U.S. Patent Publication No. 2002/0010894, January 24, 2002.

U.S. Patent Publication No. 2002/0026618, February 28, 2002.

U.S. Patent Publication No. 2002/0136332, September 26, 2002.

European Patent Publication No. EP1178613A1, February 6, 2002.

C. Berrou et al.: "Near Optimum Error Correcting Coding and Decoding: Turbo codes", IEEE Transactions on Communications, 44(10), October 1996.

R.Y. Shao et al.: "Two simple stopping criteria for Turbo decoding", IEEE Transactions on Communications, 47(8):1117-1120, August 1999.

A. Matache et al.: "Stopping Rules for Turbo Decoders", The Telecommunications and Mission Operations Progress Report 42-142, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California under contract of NASA, August 2000.

X. Wang: "Cutting Power in Turbo Coding Architectures", CommsDesign, May 22, 2002.

William J. Blackert III: "Implementation Issues of Turbo Trellis Coded Modulation", MSc. Thesis University of Virginia, May 1996 (pp. 34-40).


S. Yoon et al.: "A Parallel MAP Algorithm for Low Latency Turbo Decoding", IEEE Communications Letters, Vol. 6, No. 7, July 2002.

"Technical specification group radio access network; multiplexing and channel coding (FDD) (release 5)", 3GPP TS 25.212 V5.2.0, 2002.

"Technical specification group radio access network; spreading and modulation (FDD) (release 5)", 3GPP TS 25.213 V5.2.0, September 2002.

The documents are being submitted within three (3) months of the filing or entry of the national stage of this application or before the first Office Action on the merits, whichever is later. Since documents are being filed within the time period set forth in 37 C.F.R. § 1.97(b) no fee or statement is required.

The Examiner's attention is directed to copending application number 60/394,320, naming Peter Malm as inventor(s) and filed on July 8, 2002, a copy of which is enclosed.

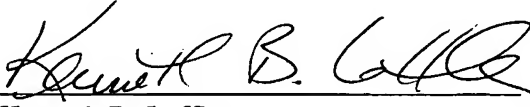
 In accordance with M.P.E.P. § 609(c)(2) (August 2001, page 600-131), the Office is requested to return a copy of this Information Disclosure Statement with the Examiner's initials adjacent to this paragraph indicating that this copending application has been considered. By citation to the copending application, confidentiality is not waived and the Office is requested to maintain the confidentiality of the copending application under 35 U.S.C. § 122.

To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner-initialed copy of this form be returned to the undersigned.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: November 26, 2003

By:   
Kenneth B. Leffler  
Registration No. 36,075

P.O. Box 1404  
Alexandria, Virginia 22313-1404  
(703) 836-6620

Substitute for forms 1449A/PTO &amp; 1449B/PTO

# **FIRST INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

ATTORNEY'S DKT NO.  
040072-217

APPLICATION NO.  
10/622,742

APPLICANT  
Peter MALM et al.

FILING DATE  
July 21, 2003

GROUP  
Unassigned

## **U.S. PATENT DOCUMENTS**

| Examiner<br>Initials | Document<br>Number | Kind Code<br>(if known) | Name of Patentee or Applicant<br>of Cited Document | Issue/Publication<br>Date<br>(MM-DD-YYYY) |
|----------------------|--------------------|-------------------------|----------------------------------------------------|-------------------------------------------|
|                      | 5,761,248A         |                         | Hagenauer et al.                                   | 06-02-1998                                |
|                      | 6,360,345          |                         | Kim et al.                                         | 03-19-2002                                |
|                      | 2002/0010894       |                         | Wolf                                               | 01-24-2002                                |
|                      | 2002/0026618       |                         | Wang                                               | 02-28-2002                                |
|                      | 2002/0136332       |                         | Dielissen et al.                                   | 09-26-2002                                |
|                      |                    |                         |                                                    |                                           |
|                      |                    |                         |                                                    |                                           |
|                      |                    |                         |                                                    |                                           |
|                      |                    |                         |                                                    |                                           |

## **FOREIGN PATENT DOCUMENTS**

| Examiner<br>Initials | Document<br>Number | Kind Code<br>(if known) | Country | Date of Publication<br>(MM-DD-YYYY) | Translation<br>Yes No |
|----------------------|--------------------|-------------------------|---------|-------------------------------------|-----------------------|
|                      | EP1178613A1        |                         | Europe  | 02-06-2002                          |                       |
|                      |                    |                         |         |                                     |                       |
|                      |                    |                         |         |                                     |                       |
|                      |                    |                         |         |                                     |                       |

## **NON PATENT LITERATURE DOCUMENTS**

| Examiner<br>Initials | Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      | C. BERROU et al.: "Near Optimum Error Correcting Coding and Decoding: Turbo-codes", IEEE Transactions on Communications, 44(10), October 1996.                                                                                                              |
|                      | R.Y. SHAO et al.: "Two simple stopping criteria for Turbo decoding", IEEE Transactions on Communications, 47(8):1117-1120, August 1999.                                                                                                                     |
|                      | A. MATAACHE et al.: "Stopping Rules for Turbo Decoders", The Telecommunications and Mission Operations Progress Report 42-142, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California under contract of NASA, August 2000.     |
|                      | X. WANG: "Cutting Power in Turbo Coding Architectures", CommsDesign, May 22, 2002.                                                                                                                                                                          |
|                      | WILLIAM J. BLACKERT III: "Implementation Issues of Turbo Trellis Coded Modulation", MSc. Thesis, University of Virginia, May 1996 (pp. 34-40).                                                                                                              |
|                      | S. YOON et al.: "A Parallel MAP Algorithm for Low Latency Turbo Decoding", IEEE Communications Letters, Vol. 6, No. 7, July 2002.                                                                                                                           |
|                      | "Technical specification group radio access network; multiplexing and channel coding (FDD) (release 5)", 3GPP TS 25.212 V5.2.0, 2002.                                                                                                                       |
|                      | "Technical specification group radio access network; spreading and modulation (FDD) (release 5)", 3GPP TS 25.213 V5.2.0, September 2002.                                                                                                                    |
|                      |                                                                                                                                                                                                                                                             |
|                      |                                                                                                                                                                                                                                                             |
|                      |                                                                                                                                                                                                                                                             |
|                      |                                                                                                                                                                                                                                                             |
|                      |                                                                                                                                                                                                                                                             |
|                      |                                                                                                                                                                                                                                                             |

Examiner  
Signature

Date  
Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.